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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/745,598 | 12/21/2000 | Xiaoshu Qian | 42390.P8730 | 1193 |

7590 05/05/2004

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| EXAMINER |
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WILLIAMS, LAWRENCE B

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| ART UNIT | PAPER NUMBER |
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2634

DATE MAILED: 05/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/745,598

Applicant(s)

QIAN ET AL.

Examiner

Lawrence B Williams

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 21 December 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-11 and 13-17 is/are rejected.
- 7) ☒ Claim(s) 2,12 and 18 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 21 December 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character "406" has been used to designate both multiplier and an unnamed item in Fig. 4. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

2. The drawings are objected to under 37 CFR 1.83(a) because they fail to show filter weights, $g(i)$ and $g_Q(i)$ as described in the specification on page 4. Examiner suggests applicant correct Fig. 3. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

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4. Claims 1, 3 are rejected under 35 U.S.C. 102(b) as being anticipated by Mahoney (US Patent 6,360,369 B1).

(1) With regard to claim 1, Mahoney discloses in Figs. 2-5, a filter comprising: at least one multiplier (Fig. 4, 405, 406) to multiply samples of an input discrete-time signal by a set of filter weights to provide a resulting discrete-time signal, wherein the filter weights are the convolution of a set of Nyquist filter weights with a set of pre-equalizer filter weights (col. 8, lines 3-31); and at least one adder (416) to add samples of the resulting discrete-time signal.

(2) With regard to claim 3, Mahoney also discloses wherein the input discrete-time signal is a two-bit QAM signal (col. 2, lines 44-45).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 4-11, 13-17 are rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Mahoney (US Patent 6,360,369 B1).

(1) With regard to claim 1, Mahoney discloses in Figs. 2-5, at least one multiplier (Fig. 4, 405, 406) to multiply samples of an input discrete-time signal by a set of filter weights to provide a resulting discrete-time signal, wherein the filter weights are the convolution of a set of Nyquist filter weights with a set of pre-equalizer filter weights (col. 8, lines 3-31); and at least one adder

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(416) to add samples of the resulting discrete-time signal. Though Mahoney is silent as to a symbol mapper, the use of a symbol mapper in the modulation of QAM is well known and would be inherent to one skilled in the art.

(2) With regard to claim 5, Mahoney also discloses wherein the modem is a cable modem (abstract).

(3) With regard to claim 7, Mahoney also discloses wherein the input discrete-time signal is a two-bit QAM signal (col. 2, lines 44-45).

(4) With regard to claim 8, Mahoney also discloses in Figs. 1 and 2, a modulator (2) to modulate the output discrete-time signal to provide a modulated discrete-time signal; a cable interface circuit to propagate the analog signal on a cable (113). Though Mahoney does not explicitly disclose a digital-to-analog circuit to convert the modulated discrete-time signal to an analog signal, its use would be inherent to one skilled in the art as applicant himself has pointed out in the prior art.

(5) With regard to claim 10, Mahoney also discloses wherein the input discrete-time signal is a two-bit QAM signal (col. 2, lines 44-45).

(6) With regard to claim 11, claim 11 inherits all limitations of claim 4, as claim 11 merely discloses the method of the apparatus disclosed in claim 4.

(7) With regard to claim 13, Mahoney also discloses wherein the input discrete-time signal is a two-bit QAM signal (col. 2, lines 44-45).

(8) With regard to claim 14, though Mahoney is silent as to a symbol mapper, the use of a symbol mapper in the modulation of QAM is well known and would be inherent to one skilled in the art.

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(9) With regard to claim 15, though Mahoney does not explicitly disclose a digital-to-analog circuit to convert the modulated discrete-time signal to an analog signal, its use would be inherent to one skilled in the art as applicant himself has pointed out in the prior art.

(10) With regard to claim 16, claim 16 inherits the limitations of 4. Though Mahoney does not disclose the use of the invention in a computer system, the use of cable modems and modem functions are well known in today's technological advancement.

(11) With regard to claim 17, Mahoney also discloses wherein the modem is a cable modem (abstract).

Allowable Subject Matter

7. Claims 2, 12, and 18 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lawrence B Williams whose telephone number is 703-305-6969. The examiner can normally be reached on Monday-Friday (8:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on 703-305-4714. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Lawrence B. Williams

lbw
April 1, 2004



STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
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